Wisconsin
Department of Commerce

Evaluation # 200107-R (Replaces 950001-R)

Safety & Buildings Division
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Wisconsin
Building Products Evaluation

Material	Elastizell Cellular Concrete and Ability Form Assembly Construction System
Manufacturer	Elastizell Corporation of America P.O. Box 1462 Ann Arbor, Michigan 48106

SCOPE OF EVALUATION

The Elastizell Cellular Concrete and Ability Form Assembly Construction System was evaluated for use as a fire-resistive structural component(s) as defined in **s. Comm 51.01 (47)**.

The Elastizell Cellular Concrete and Ability Form Assembly Construction System was evaluated in accordance with the rating requirements of **s. Comm 51.043 (1)(a)** and conforms to noncombustible construction as defined in **s. Comm 51.01 (85)**.

The Elastizell Cellular Concrete and Ability Form Assembly Construction System was evaluated in accordance with the foam plastic requirements of **s. Comm 51.06 (3)** and **(4)(a), (b) and (c)**.

The Elastizell Cellular Concrete and Ability Form Assembly Construction System was evaluated in accordance with the concrete requirements of **s. Comm 53.40,** all in accordance with the current edition of the Wisconsin Administrative Building And Heating, Ventilating And Air Conditioning Code.

DESCRIPTION AND USE

Elastizell Cellular Concrete:

Proprietary Elastizell concentrate is diluted in water 40 to 1 and then combined with at 100 psi in a generator to produce a stable preformed foam which is added to either a concrete grout or cement slurry in predetermined proportions to produce Elastizell concrete of the proper density. The grout mixes are produced in a ready-mix truck while the slurry mixes are produced in a special paddle mixer. The Elastizell concrete is usually pumped into place. The density is checked at the point of placement in a container of known volume.

Ability Form Assembly Construction System:

The Ability Form Assembly Construction System is an 8-inch thick nominal wall system which consists of premanufactured wood panels which are held together by accurately manufactured wire grills whose bent leg is inserted into predrilled holes in the wood panels. The premanufactured wood panels are 5/8-inch thick Aspenite (wide chip or flake board). The two panels are then stacked with interlocking tongue-and-groove edges to form the wall. When required, reinforcing steel is placed as the forms are stacked. Polystyrene board may be inserted in the form cavity next to the outside panel for additional insulation. Finally, Elastizell cellular concrete is placed into the cavity to finish the wall.

The wall panels are manufactured in several different sizes, see Figure 2.

The Ability system includes corner forms. There are four panels and one corner post in a corner form. There are inside corner and outside corner panels. There is an inside corner left (ICL) and an inside corner right (ICR) panel, and the same for the outside panels, (OCL) and (OCR), see Figure 3.

The 1- to 8-inch thick, 2-foot wide by 4-foot long, 1.0 pcf density, expanded polystyrene board manufactured by Southeastern Foam Products, Inc., is embedded in the Elastizell cellular concrete with the long dimension parallel to the steel corrugation with ends and edges butted. The polystyrene board must have Class II flame-spread classification in accordance with **s. Comm 51.05 (2)**. Alternate manufacturers of the polystyrene board may be used, provided the thickness, size, density, hole configuration and flame-spread classification are identical to the board specifications noted in this evaluation (Figure 1). Note: The polystyrene board is not included in this evaluation.

Figure 1. Polystyrene Board

Ability Form Assembly Construction System

Figure 3 Corner Blocks

Figure 2 Straight Blocks

TESTS AND RESULTS

The Elastizell cellular concrete, as part of the fire-resistive floor/ceiling assemblies and roof assemblies described in this evaluation, was tested in accordance with ASTM E119.

One-Hour Fire-Resistive Wood Floor, Ceiling Assembly, and Roof Assembly:

Minimum; 1 1/2-inch thick Elastizell concrete is applied on wood floor framing members that are covered with an approved building paper. In lieu of the building paper over the wood subfloor, a liquid membrane consisting of a latex bonder with 48 percent solids diluted with water may be applied at a rate of 1 gal/400 sq. ft. The joints are sealed with a 4-inch wide strip of building paper, stapled into place, or a United States Gypsum or equal all-purpose caulking compound. The Elastizell cellular concrete is used as a substitute for tongue-and-groove finish flooring or plywood, for a 1-hour fire-resistive rating in wood floor construction. The density shall be 100 lb./cu. ft. For a 1-hour fire-resistive wood roof, the Elastizell cellular concrete shall have a density of not less than 30 lb./cu. ft.

One-Hour Noncombustible Unrestrained Floor/Ceiling Assembly:

The assembly consists of (a minimum), 2-inch thick Elastizell cellular concrete. The Elastizell cellular concrete shall have a minimum 28-day compressive strength of 800 lb./sq. and a 105 pcf dry density, over flutes of cold-formed No. 25 guage minimum galvanized steel deck in accordance with ASTM A-366 commercial-quality steel, and minimum 32 ksi yield strength, with 5/16-inch deep corrugations spaced 5-inches on center.

Two-Hour Noncombustible Fire-Resistive Roof Construction:

The fire-resistive construction consists of 1-5/16-inch deep corrugated steel or 1-1/2-inch deep with 6-inch pitch fluted deck sections filled with Elastizell cellular concrete poured to a thickness of 2-1/4-inches above the top flutes. The Elastizell cellular concrete shall have a minimum 28-day compressive strength of 190 lb./sq. in. as tested in accordance with ASTM C-495 and C796. It is reinforced with No. 12 by 14 ga., 4 by 8-inch, welded wire mesh or keystone 2160-2-1619 keydeck mesh having an equivalent steel per unit area.

Two-Hour Noncombustible Fire-Resistive Roof Construction with Polystyrene Insulation Board:

The assembly consists of polystyrene board placed over 1-5/16-inch deep, 5-inch pitch, corrugated steel sections filled and covered with 2-1/4-inch thick Elastizell cellular concrete. Minimum .027-inch thick galvanized steel corrugated form deck having a minimum yield strength of 33,000 lb./sq. in. and fastened to the steel framing perpendicular to the corrugations using a No. 16 ga weld washer attached by puddle welds, through a 3/8-inch diameter hole in the washer, spaced a maximum of 15 inches on center.

Attachment to framing members parallel to the deck corrugations with weld washers, their spacing is based on the design shear transfer value.

*__Floor/Ceiling Wood Construction:__

UL L512: Unrestrained assembly rating - one hour. Finish rating - 21 minutes.
UL L514: Unrestrained assembly rating - one hour. Finish rating - 26 minutes.

*__Roof/Ceiling, Concrete/Steel Construction For:__

One-, 1-1/2- and 2-hour ratings, see UL designs: P902, P905, P910 and P916.

*(Note: Refer to UL directory for designs not listed)

The Ability Form Assembly Construction System was tested in accordance with ASTM E119 and met the conditions of acceptance as a load-bearing, noncombustible 3-hour assembly. The conditions of acceptance were satisfied for both fire endurance and hose stream tests.

LIMITATIONS OF APPROVAL

Elastizell cellular concrete may be used in floor-ceiling construction in accordance with the Underwriters Laboratories listing for fire-resistance ratings in the L500 design series. The roof-ceiling fire-resistant designs are listed by UL in the P200, P400, P500, P700, P800 and P900 design series.

Elastizell cellular concrete may be used in a semi-structural capacity as a slab-on-grade with density between 95 to 110 pcf. It may also be used as a floor fill or insulating roof deck over wood, concrete or steel decking. The above-grade floor fill density should be between 95-110 pcf whereas insulating roof fills are typically cast between 34-42 pcf.

The Elastizell Concrete/Ability Form Assembly Construction System is approved as a load-bearing, noncombustible 3-hour wall assembly. The cast density of the concrete in the 3-hour wall assembly is 42-48 pounds per cubic foot.

When required under **s. Comm 50.12**, structural calculations, plans, and appropriate fees shall be submitted to the department for each project using the Elastizell wall system.

This approval will be valid through December 31, 2006, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: _____

Revision Date:

Approval Date: March 21, 2001 By: _____

Lee E. Finley, Jr.
Product and Material Review
Integrated Services Bureau

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